



A23-162

## AR穴位解析一岐黃妙訣

AR Analysis of Acupoints

隊伍名稱 | 75° 高粱

75° Sorghum

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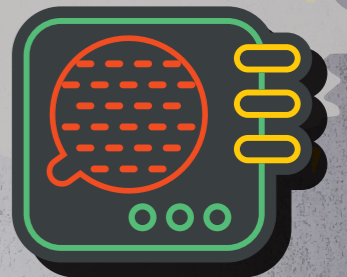
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## 研究領域

深度學習、計算式智慧、影像處理



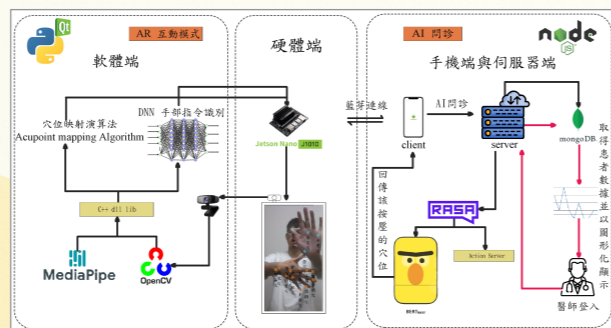
## 作品摘要

按穴道是保養身體的方法之一，其中包含許多具有治癒特效的穴位，不僅能針對單一疾病產生治療效果，還可以調整全身機能，然而，穴位分佈於人體各處，其確切位置通常需要透過專業書籍或專家的協助才能確定。為了協助使用者更輕鬆地定位手部與頭部穴位並了解其功能，以便隨時緩解症狀並預防疾病，我們團隊開發了一套互動式AR穴位保健系統。

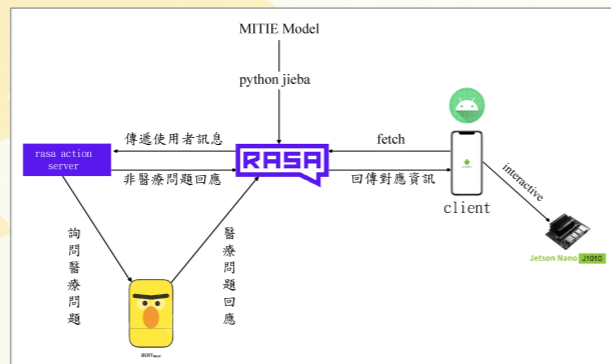
本系統以Jetson Nano J1010作為開發板，並運用Mediapipe技術和穴位映射演算法，顯示穴位到螢幕上。透過自定義DNN手部識別模型，實現了增強現實（AR）的穴位互動。使用者可以透過手勢，查看對應穴位點在身體上的位置，以及穴位簡述。此外，我們還開發了手機APP，通過藍芽技術實現與智慧鏡子的互動功能。使用者可以選擇想要了解的症狀，系統將顯示出緩解該症狀的穴位。

本團隊也開發了AI問診，使用開源對話人工智慧Rasa，利用自然語言理解（NLU）判斷使用在手機APP上輸入的意圖，當判斷意圖為醫療相關內容，便會傳到BERT模型進行問診資訊分析，判斷可能的疾病或症狀，並提供相應的建議穴位來緩解症狀，有助於使用者對自身狀況進行初步判斷。所有的AI問診資訊都會傳送到伺服器端，醫師可以透過網站查看使用者的資訊。利用圖表化數據，醫師能夠快速了解使用者的狀況，進一步節省醫療資源。這種基於穴位保健的系統為人們提供了一個安全、方便、高效的健康保健解決方案，尤其對於缺乏經驗和醫學知識的人來說，具有重要的價值。本作品的創新點在於結合手機APP、AI和AR技術，實現了基於穴位的健康保健解決方案。

傳統的健康保健方式可能需要書籍或專家的協助來確定穴位的位置，而我們透過互動式AR穴位保健系統和手機應用程式的結合，使得使用者能夠直觀地了解手部穴位在身體上的位置和作用。這種創新的技術結合使得穴位保健更加便利和高效，為使用者提供了一個全新的自我保健方式。



圖一 系統架構圖。



圖二 BERT AI問診。

## Abstract

Acupoint stimulation is one of the methods for maintaining the body's health. It includes many acupoints with healing effects that not only target specific diseases but also regulate overall body functions. However, acupoints are distributed throughout the body, and their exact locations often require the assistance of professional books or experts to determine. In order to assist users in easily locating and understanding the acupoints on the hands and head, enabling them to relieve symptoms and prevent diseases at any time, our team has developed an interactive AR acupoint health care system.

This system uses the Jetson Nano J1010 development board and incorporates Mediapipe technology and acupoint mapping algorithms to display acupoints on the screen. Through a custom deep neural network (DNN) hand recognition model, it achieves augmented reality (AR) acupoint interaction. Users can use gestures to view the corresponding acupoint locations on the body, as well as brief descriptions of the acupoints. Additionally, we have developed a mobile app that interacts with the system via Bluetooth technology. Users can select the symptoms they want to understand, and the system will display the acupoints that can alleviate those symptoms.

Our team has also developed AI consultation using the open-source conversational AI Rasa, utilizing natural language understanding (NLU) to determine the user's intent based on their inputs in the mobile app. When the intent is related to medical content, it is passed to the BERT model for consultation information analysis, determining possible diseases or symptoms, and providing corresponding acupoint recommendations to relieve the symptoms. This helps users make preliminary judgments about their own conditions. All AI consultation information is transmitted to the server, where doctors can view user information through a website. By utilizing visualized data, doctors can quickly understand the user's condition and further save medical resources. This acupoint-based system provides a safe, convenient, and efficient health care solution for people, especially those who lack experience and medical

knowledge. The innovation of this project lies in the combination of the mobile app, AI, and AR technologies, realizing an acupoint-based health care solution.

Traditional methods of health care may require books or expert assistance to determine the locations of acupoints. Through the combination of our interactive AR acupoint health care system and the mobile app, we enable users to intuitively understand the positions and functions of acupoints on the hands in their bodies. This innovative combination of technologies makes acupoint health care more convenient and efficient, providing users with a new way of self-care.

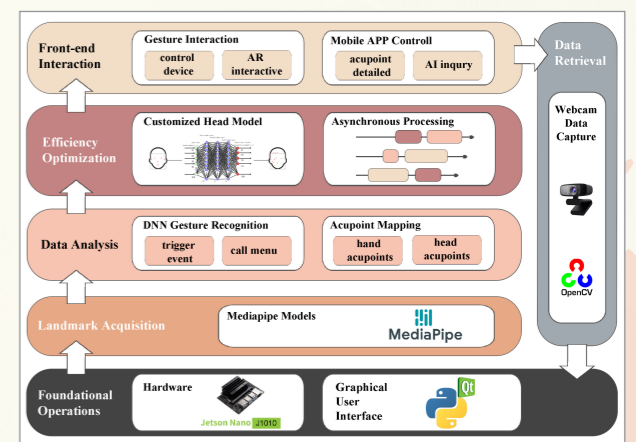


Fig.3 Produce structure.